

ABSTRACT

The invention relates to a Bi-substituted rare earth-iron garnet single-crystal film and a method for producing it, and also to a Faraday rotator comprising it. Its object is to provide a magnetic garnet single-crystal film which hardly cracks while it grows or is cooled or polished and worked, and to provide a method for producing it. Its object is also to provide a Faraday rotator produced at high yield by working the magnetic garnet single-crystal film which hardly cracks while it grows or is cooled or polished and worked. In a method for producing a magnetic garnet single-crystal film by growing a Bi-substituted magnetic garnet single crystal in a mode of liquid-phase epitaxial growth, the lattice constant of the growing magnetic garnet single crystal is so controlled that it does not vary or gradually decreases with the growth of the single-crystal film, and then increases with it.